

Claims

We claim:

- 1        1. A method to decrease resonance in a printed circuit board  
2        (PCB), comprising:  
3                cutting a ground plane to increase a signal transit time in said ground  
4                plane.  
1        2. A method in accordance with claim 1, wherein:  
2                cutting said ground plane is performed by orienting a cut axis  
3                substantially perpendicular to a long axis of the PCB.  
1        3. A method in accordance with claim 1, wherein:  
2                cutting said ground plane is performed with a continuous cut pattern.  
1        4. A method in accordance with claim 1, wherein:  
2                cutting said ground plane is performed with a zipper cut pattern.  
1        5. A method in accordance with claim 1, wherein:  
2                cutting said ground plane is terminated more than 10 mils from an  
3                associated signal trace line.  
1        6. A method to decrease resonance in a PCB, comprising:  
2                lengthening a signal trace line to increase a signal transit time in said  
3                signal trace line; and  
4                cutting a ground plane associated with said signal trace line to increase a  
5                signal transit time in said ground plane.

- 1        7. A method in accordance with claim 6, wherein:  
2            cutting said ground plane is performed by orienting a cut axis  
3            substantially perpendicular to a long axis of the PCB.
  
- 1        8. A method in accordance with claim 6, wherein:  
2            cutting said ground plain is performed with a continuous cut pattern.
  
- 1        9. A method in accordance with claim 6, wherein:  
2            cutting said ground plane is performed with a zipper cut pattern.
  
- 1        10. A method in accordance with claim 6, wherein:  
2            cutting said ground plane is terminated more than 10 mils from said  
3            associated signal trace line.
  
- 1        11. A method in accordance with claim 6, further comprising:  
2            repeating the lengthening of said signal trace line and the cutting of said  
3            ground plane for a plurality of signal trace lines and associated ground planes.
  
- 1        12. A method in accordance with claim 11, further comprising:  
2            coordinating the lengthening and cutting of said plurality of pairs of  
3            associated signal trace lines and ground planes so that said plurality of ground  
4            planes cuts are similarly located within a PCB layer.

1           13. An apparatus to decrease resonance in a printed circuit board,  
2           comprising:  
3            a signal trace line for carrying a signal;  
4            a ground plane for connecting said signal trace line to a ground;  
5            a cut in said ground plane for increasing the transit time of said signal  
6           through said ground plane.

1           14. An apparatus in accordance with claim 13, further comprising:  
2            an additional length segment within said signal trace line for increasing  
3           the transit time of said signal through said signal trace line;  
4            said additional length segment when added to said signal trace line  
5           increases the transit time at said signal through said signal trace line out of a  
6           resonance range.

1           15. An apparatus in accordance with claim 13, wherein:  
2            said cut is oriented substantially perpendicular to a long axis of the PCB.

1           16. A claim in accordance with claim 13, wherein:  
2            said cut is continuous.

1           17. A claim in accordance with claim 13 wherein:  
2            said cut is a zipper cut.

1           18. A claim in accordance with claim 13, wherein:  
2            said cut terminates more than 10 mils from said signal trace line.

1           19. An apparatus in accordance with claim 13, wherein:  
2            a plurality of said cuts are similarly located with a PCB layer.